

REMARKS

The Office Action mailed from the Patent Office on February 13, 2006, has been reviewed and the Examiner's comments carefully considered. Prior to this paper claims 1-46 were pending, with claims 9-11, 21-32, 34, 36, 38 and 41-46 being withdrawn. By this paper, Applicants do not cancel any claims, and add claims 48-51. Therefore, Claims 1-46 and 48-51 are now pending.

Claims 1 and 13 stand amended. Support for these amendments may be found, among other places, at page 3, lines 14-24 of the specification as originally filed.

Applicants respectfully submit that the present application is in condition for allowance for at least the reasons that follow.

Acknowledgement of Priority Papers is Requested

Applicants request that an examiner acknowledge the claim for foreign priority to BE 9700792 (filed October 02, 1997) in this application.

The parent of this case (Application Serial Number 09/509,427) entered prosecution from PCT application PCT/EP98/06245. Applicant complied with PCT Rule 17(a)/(b), as evinced by the form PCT/DO/EO/903 presented in Appendix A of the Response of January 25, 2006, the receipt and acceptance of said evidence being acknowledged in the Office Action.

Obviousness-Type Double Patenting Rejection

Claims 1-8, 12-20, 33, 35, 37, 39 and 40 are rejected under the judicially created doctrine of obviousness-type double patenting in view of U.S. Patent No. 6,607,998. In response, Applicants submit a terminal disclaimer along with this letter, and respectfully request withdrawal of the rejections in view of the terminal disclaimer.

Claim Rejections Under 35 U.S.C. § 103(a)

In the Office Action, claims 1-8, 12-20, 33, 35, 37, 39 and 40 stand rejected under 35 U.S.C. §103 as being obvious in view of EP 0329863 when combined with EP 0628146 and Krupnik et al. (U.S. Patent No. 6,298,538), while claims 35 and 37 stand rejected under the same statute in view of the combination of EP 0329863 with EP 0628146, with Krupnik, and with De Bruyne (U.S. Patent No. 5,088,919).

In response, in order to advance prosecution, and without prejudice or disclaimer, Applicants have made the above amendments to the independent claims, and respectfully submit that the claims are allowable for at least the following reasons.

Applicants rely on MPEP § 2143, which states that:

[t]o establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.

It is respectfully submitted that the Office Action has not met any of the first, second and the third criteria of MPEP § 2143 even before the above amendments, and cannot meet any of these criteria after the above amendments.

The References Do Not Suggest All Claim Recitations

Independent claims 1 and 13 each recite that the membrane is a **burner membrane**, (claim 13 reciting this language twice). In all of the pending claims, there is a recitation that at least one layer of the **burner membrane** must **not** include a sintered body. This recitation

is not met by the membrane resulting from the combinations proffered in the Office Action, as will now be detailed.

EP '863 teaches various designs for metal webs that may be used in a variety of devices, such as, for example, filters and burners. While EP '863 does teach filters that include a layer that is not sintered, it does not teach a burner membrane that is not sintered. That is, all teachings in EP '863 relating to burner membranes include the use of sintered webs and exclude non-sintered webs. Each instance in EP '863 where the Office Action identifies a teaching of a non-sintered web, EP '863 is teaching a filter, not a burner membrane. (Moreover, in each of the instances cited in the Office Action, EP '863 states preferably that the web preferably be sintered. (In fact, the second identification in the Office Action does not mention a non-sintered web.)) Further, EP '863 teaches that each test sample of a burner membrane according to its teachings is/was sintered. For example, while "Test 1" detailed on page 5 of EP '863, and cited in the Office Action as teaching a porosity within the recited claim, does state that a non-sintered filter was used for a *filter* (not a *burner membrane*), "Test 2" and "Test 3," which are directed towards *burner membranes*, specifically teach that all of the burner membranes were sintered. Indeed, each and every claim in EP '863 specifically recites a "sintered" web. Thus, while the Office Action is correct to note that EP '863 does teach a non-sintered filter, it never teaches a non-sintered burner membrane. By teaching a non-sintered web, but then teaching that all burner membranes must be sintered, EP '863 teaches that a sintered burner membrane is indispensable in obtaining a metal fiber *burner* membrane, and thus teaches away from the invention of claims 1 and 13 (discussed in greater detail below).

Moreover, independent claims 1 and 13 both recite a burner membrane comprising "a needled fiber web which is compressed to a porosity of between 60% and 95% . . . wherein the fiber web is needled in one step and compressed to the porosity of between 60% and 96% in a subsequent step." (Emphasis added.) That is, the needling occurs before the compression step, else the "needled fiber web" could not be compressed. Moreover, the compression of the needled fiber web results in the claimed porosity.

The Office Action asserts that the “examples set forth in table 1 [of EP ’863] show porosities of 47.7-85.7 percent,” and recognizes that EP ’863 does not teach needling.¹ The Office Action also asserts that EP ’146 teaches “a compressed web of stainless steel fibers. The web having a porosity of about 78-88 percent,” and in a prior Office Action, has acknowledged that EP ’146 also does not teach needling. (Emphasis added.) The Office Action relies on Krupnik to remedy this deficiency, asserting that “it would have been obvious . . . to have needled the web of EP ’863, in order to produce a stronger fabric.” (Emphasis added.) However, even if Krupnik’s needling were utilized on the web of EP ’863 and/or EP ’416, the above features of the claims under consideration would still not be achieved. First, needling the web would thus result in needling *after* compression – not *before* compression, as is required by the claims, because the webs of EP ’863 and EP ’416 are already compressed. Second, it is not clear that needling the membrane of EP ’863 and/or EP ’416, either *before or after* compression, would result in a membrane having the claimed porosity, and no evidence has been proffered to the contrary. That is, needling will skew the porosity away from the ranges taught in EP ’863 and/or EP ’416, and thus away from the claimed ranges. (This is even more so in the case of claims 2 and 14, which recite a narrower porosity range.)

Applicants’ claims are directed towards a *needled* fiber web that is compressed, *after* needling, a certain amount so that the needled fiber web achieves a desired porosity. This is not found in the cited references. Applicants submit that the process of needling alters the porosity of the material, just as compression alters the porosity of the material, and thus needling the web as proffered in the Office Action changes the porosity of the material from the ranges cited in the Office Action. Thus, another recitation is not present even after combination.

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Claim 6 and 18: Claim 6 is ultimately dependent from claim 1, and claim 18 is ultimately dependent from claim 13. Each recite that the weight of the fiber web is between

¹ Again, as detailed above, the samples in “Table 1” of EP ’863 are not for a burner membrane.

1000 g/m² and 2500 g/m². The Office Action asserts that EP '863 teaches a non-sintered web having "a weight of about 850-950 grams per square meter." Thus, the Office Action specifically recognizes that the teachings of EP '863 relied on in the Office Action fall outside the claimed range of claims 6 and 18. Therefore, claims 6 and 18 are allowable for other reasons in addition to their dependency, respectively, from claims 1 and 13.

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Claims 12 and 40: Claims 12 and 40 ultimately depend from claims 1 and 13, respectively. These claims recite a burner component for a *gas burner*, comprising a *surface burner* comprising the burner membrane as claimed in the respective independent claims. Thus, because EP '863 does not teach a non-sintered membrane suitable for use in a burner, these claims are allowable for additional reasons.

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In sum, the proffered combination fails to meet the third requirement of MPEP § 2143 for at least three reasons, and thus independent claims 1 and 13 are allowable, along with the claims that depend therefrom. This is also the case with claims 35 and 37, at least because De Bruyne does not remedy the above identified deficiencies with EP '863, EP '146 and Krupnik.

Lack of Suggestion to Modify the Reference

MPEP § 2144.05(III), entitled Rebuttal Of *Prima Facie* Case Of Obviousness, states that a "*prima facie* case of obviousness may also be rebutted by showing that the art, in any material respect, teaches away from the claimed invention." (MPEP § 2144.05(III), second paragraph, emphasis added, citations omitted.) As detailed above, EP '863 does not teach a *burner membrane* having a portion that is not sintered, and by repeatedly directing the reader to utilize a web that is sintered for a burner membrane, EP '863 teaches away from the present invention.

Still further, EP '863 specifically teaches that little variance in permeability is a requirement for a metal fiber medium when used as a burner membrane. The skilled artisan would have known that needling operations may create localized areas of increased permeability as a result of the insertion of the needles through the web, thus creating a variance in permeability. Therefore, the skilled artisan would not have sought out EP '863 for a web that would then be needled. Indeed, this is yet another example of EP '863 teaching away from the present invention as claimed.

Thus, to the extent that a *prima facie* case of obvious has been established (which it has not), that case of obviousness is hereby rebutted, as EP '863 teaches away from the present invention in at least two material respects.

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MPEP § 2143.01, entitled *Suggestion or Motivation to Modify the References*, states that the “prior art *must* suggest the desirability of the claimed invention.” (Emphasis added; citations omitted) It further states that obviousness

can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either explicitly or implicitly in the references themselves or in the knowledge generally available to one of ordinary skill in the art. ‘The test for an implicit showing is what the combined teachings, knowledge of one of ordinary skill in the art, and the nature of the problem to be solved as a whole would have suggested to those of ordinary skill in the art.’

(Citations omitted.)

Notwithstanding the teachings EP '863 that teach away from the invention as claimed (detailed above), the ordinary artisan would not have been motivated to combine even the teachings of EP '863 related to a non-sintered web with EP '146 and Krupnik, as is alleged in the Office Action. The skilled artisan would have recognized that EP '863 teaches that its webs have the recited porosities relied on in the Office Action only after compression. Claims 1 and 13 recite that the compression step takes place after the needling step. Thus, the

ordinary artisan would not have sought out the webs of EP '863 because these are already compressed, and thus he/she could not needle the webs before compression.

Alternatively, had the ordinary artisan attempted to modify the non-sintered webs of EP '863 (that is, not compressed the webs), the porosities would be different than those detailed, as non-compressed webs have a lower density and thus a different porosity than compressed webs. That is, the porosities of the non-sintered webs taught in EP '863 would no longer be present, and thus the ordinary artisan would not have looked to modify EP '863, and, in fact, would have been discouraged from doing so.

Still further, even if the recitation regarding the sequence of needling and compression is totally ignored, and even if the fact that EP '863 does not teach a non-sintered web for a burner membrane is totally ignored (both of which appear to be the case based on the rejections at hand), the ordinary artisan would still not have sought to needle the non-sintered web of EP '863, as he/she would have recognize that needling would skew the porosity of the webs (as detailed above), and thus the ordinary artisan seeking to obtain a web with a porosity as claimed would have been discouraged from modifying a web of known porosity that falls within the recited range.

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The Office Action appears to assert that because EP '863 and EP '146 teach embodiments with porosities lying in the recited range, the ordinary artisan would have viewed the teachings of EP '863, at least with respect to the non-sintered webs, as freely interchangeable with those of EP '146, to arrive at the present invention. Not so, as all teachings in EP '146 are directed to a sintered web, including every example disclosed therein. Indeed, so important is the sintering operation in EP '146 that each claim includes this limitation. EP '146 clearly directs the reader to utilize sintering. Therefore, the ordinary artisan would not have sought out the teachings of EP '146, which entirely relate to sintering, for combination with the non-sintered teachings of EP '863, even of the fact that EP '863 teaches away from utilizing non-sintered webs in a burner membrane is ignored.

Because the skilled artisan would have viewed as fact, based on the prior art (to which he is assumed to be completely aware under the law) that the porosities of EP '146 (78% to 88%) could not be achieved without sintering, the skilled artisan would not have attempted to combine the teachings of EP '146 with the non-sintering teachings of EP '863.

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Sintering issues aside, Applicants again respectfully submit that the Krupnik reference teaches away from incorporating Krupnik into a burner membrane by teaching that it is important that the fibers retain the oil on their outer surfaces.² *That is, the ordinary artisan would have been discouraged from utilizing the oil laced fibers of Krupnik in the burner membrane web of EP '146.* Applicants respectfully submit that if the PTO maintains a rejection of the claims based on the combination of Krupnik with EP '863 and EP '146, that the PTO specifically identify why it believes that this is not the case.

Applicants remind the PTO that a reference is used for all that it teaches, and in this instance, Krupnik teaches only embodiments that are lubricated with oil. This teaching cannot be ignored by the PTO, as this teaching would have discouraged the ordinary artisan from looking to Krupnik to modify the burner membrane of EP '146.

Lack of a Reasonable Expectation of Success

MPEP § 2143.02 permits references to be modified or combined to reject a claim as obvious only if there is a reasonable expectation of success. There is no evidence in the

² Krupnik prominently teaches that it is important that the fibers retain the oil on their outer surfaces from the shaving process, and that, if the oil is not retained, oil can be added directly to the mass of loose fibers after the shaving process. (Column 3, lines 8-15.) It is well known in the art that the presence of oil or other organic material on a burner membrane can cause early rupture of the membrane due to carbon precipitation. Carbon atoms from the burned organic material enter into the molecular structure of the alloy, and locally change the alloy balance. Usually, the carbon precipitation makes the alloy less resistant to oxidation under higher temperatures. Thus, one of ordinary skill in the art seeking a burner membrane would not seek to combine Krupnik with the other references. (It is noted that the presence of organic material is difficult if not impossible to eliminate in the art, and the presence of some organic material in or on the burner membrane is expected. Applicants simply note that one of ordinary skill in the art would not find motivation use the teachings of Krupnik in combination with the other references due to the importance that Krupnik places on oil retention.) Again, to the extent that a *prima facie* case of obviousness has been made, that case is hereby rebutted.

references, and certainly none identified in the Office Action, that one of ordinary skill in the art would have a reasonable expectation of success in achieving Applicants' invention by combining the references. For example, EP '863 clearly teaches the ordinary artisan to use its sintered embodiments for a **burner membrane**, implying strongly that non-sintered membranes should be used for filter purposes and not for burner membrane purposes. (Applicants note that this example is simply a starting point for a showing of a reasonable expectation of success; more would be needed.) Thus, one of ordinary skill in the art would not see the combination of the references as producing a successful **burner membrane**. Because of this, the second criteria of MPEP § 2143 has not been met in the Office Action, and a *prima facie* case of obviousness has therefore not been established.

Resubmittal of Evidence Submitted in Last Response

It has been previously proffered that the ordinary artisan might have found it obvious to eliminate sintering from references teaching sintering and that the ordinary artisan might have found it obvious to modify the sequence of steps of needling and compression claimed herein. These arguments have not been proffered herein, but as evidence against such arguments, to the extent that they may be proposed in the future, Applicants resubmit the evidence relied on in the last Office Action to rebut such proposals.

New Claims

As seen above, Applicants have added new claims 48-51. These claims are allowable for at least the reason that they depend from allowable claims (claims 1 and 13, variously, which are allowable, as detailed above), and for the additional reasons that EP '863 does not teach the recited weights of claims 48 and 49, as detailed above with respect to claims 6 and 18, and EP '863 does not teach a non-sintered membrane for use in a burner membrane, and thus does not teach a burner membrane that is adapted to be a burner membrane for a surface burner.

Support for these claims may be found, among other places, in originally filed claims 6 and 12.

Request for Rejoinder of Withdrawn Claims

Claims 9-11, 21-32, 34, 36, 38, 41-46 stand withdrawn. These claims are *method claims drawn to a method of making an apparatus along the lines of the considered claims*. Pursuant to MPEP § 821.04 and *In re Ochiai*, 71 F.3d 1565, 37 USPQ2d 1127 (Fed. Cir. 1995), it is respectfully requested that these claims be rejoined and considered, since MPEP § 821.04 states that “when a product claim is found allowable, applicant may present claims directed to the process of making and/or using the patentable product.”

In view of the above, Applicants note that of the withdrawn claims, claims 9, 21, 27, 33, 34 and 41-46 ultimately depend from claims 1 or 13. Applicants respectfully request that these claims be rejoined and allowed at least due to their dependency from claims 1 and 13, claims that are allowable.

As to the remaining claims, Applicants submit that these claims are allowable for at least the reasons that make the claims under consideration allowable. Applicants respectfully submit that no significant burden is placed on the PTO by rejoining and examining all the withdrawn claims. Indeed, many of the withdrawn claims explicitly recite recitations consistent with the above arguments. (For example, claims 10 and 22 affirmatively recite that the membrane is not sintered.)

Conclusion

Applicants believe that the present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment,

to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by a check or credit card payment form being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicants hereby petitions for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 19-0741.

Examiner Cole is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

Respectfully submitted,

Date

7/15, 2006

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